Cooperative Research

C. E. CORMANY[1]

In this day of surpluses and quotas, mention of possible food shortages in the future may seem out of place, but it is of these possible shortages and how we may avoid them that I wish to say a few words—and especially as it applies to sugar.

As a group we are vitally interested in the future food supply, not only of this country but of the entire world. We feel that, in order to be happy and perform out duties as good citizens, we must eat well. We all know the seriousness of a short food supply as experienced in many foreign countries.

Let us for a few minutes review the food picture—*viz.* human food—as it is today and as it may be two or three decades hence.

Little need be said about today's food supply except that we seem to be living in an era of surplus in foods and farm products in America. Will it always be thus?

Even now, in a time of abundance, we all too frequently hear about the "Fifth Plate" that will be necessary in order to feed our growing population by 1975. The demand for human food is growing each year. During the last few years our population has increased at the astounding rate of some 2,800 to 3,000 per day, and probably will continue to do so. During the two-hour session here this afternoon there will have been born in the United States some six hundred new Americans, or about five every minute. These newcomers must be fed, and fed well, to maintain our present standard of living.

Our overall position has been well summarized in an article in the Agronomy Journal of March, 1953, by Byron T. Shaw, Administrator of Agricultural Research, U. S. Department of Agriculture. He points out the following facts:

1. "Our population will continue to increase.
2. "We do not want any deterioration in the American diet.
3. "We need to increase agricultural products, make better utilization of the products produced and improve distribution.
4. "The expected increase in cropland by 1975 will provide only a small part of the projected increase in production that will be needed.
5. "Substantial improvements in current agricultural technology will be required if the nation's needs for agricultural products in 1975 are met."

It is evident that our population is rapidly increasing. Look about you and observe the new homes, new schoolhouses and new churches that are being built. In 1952 there were 920,000 new households established. The Bureau of Census estimates our 1975 population at 190,000,000; others estimate it well over 200,000,000. Our food needs at that time will be at least one-third more than they were fifteen years ago.

[1]President, American Society of Sugar Beet Technologists, 1952-53; chief agronomist, Holly Sugar Corporation. Address given at biennial meeting of Society, February, 1954.

In the past twenty-five years crop yields in the United States have increased more than 40 percent and livestock products more than 20 percent. Much of this increase has been made during the last fifteen years. It indicates that the use of new methods of farming, new fertilizer and irrigation practices, and improved varieties are being rapidly adopted and used by our farmers. In many cases they are beginning to catch up with the research phase of our agriculture and are closing the lag or gap between research and its application.

Better utilization is being made of all crops now as compared to two decades ago. We don't have to go any farther away than the lowly sugar beet to see this. It is manifest in better use of the byproducts, both from the factory and the field. Similar advances, and some even more spectacular, have been made in the utilization of other major crops.

Something is being done about the better distribution of our food products. Many new and novel ways of handling have been developed. Only last year a new method of handling lettuce was introduced. New packaging and methods of selling sugar have appeared in recent years.

The experts in the Bureau of Agricultural Economics, and others, conclude that it may be possible to add from 25,000,000 to 35,000,000 acres to our crop land by 1975. This would be done largely by new irrigation or reclamation projects and some pasture land. The application of atomic energy for the use in transportation of irrigation water may be a big factor in developing new crop land.

But this acreage is not enough. Simple arithmetic shows that it will take more acres to meet our needs at the 1950 yield rates. Much of the new land which could be made available for crop production borders on the "marginal type." Economically it is not attractive in that this land will not yield a satisfactory return on the required investment. It simply means that we will have to increase the per acre production of all crops.

Again, the experts feel that exports and imports of food will make little difference in the overall picture. New foods from the ocean, as well as new synthetics, no doubt, will help some—maybe more than we can possibly visualize at present.

How does the sugar beet fit into this overall picture? Does it have an important place in the feeding of our future population? Yes, it certainly does. Of the total world consumption, foods derived from the cereals make up about 75 percent, fruits and vegetables 10 percent, animal products about 10 percent, and sugar 5 percent.

How about here in the United States? Here the consumption is somewhat lower for foods from grain derivatives and about twice as high for animal products and sugar. This makes our product, sugar, of major concern for the future. And well it may be since its uses are so widespread in the canning, beverage and general foods industries. As the population increases, this demand for sugar will also increase. The sugar beet fields of America supply a sizable portion of our domestically consumed sugar. We must, and can, increase the sugar per acre production for sugar beets.

There is an answer to this challenge for more food which confronts us. The agricultural forces of America will meet it. They are meeting it. This group here today will be playing a part in this great project.

What is the answer? How can we maintain and increase our food supply? Can we increase our output of beet sugar?

Research and still more research is the only answer. This is being stressed by big business on all sides. Organizations such as Du Pont, the oil industries, and many others are spending millions of dollars annually to develop foods and other products. In our own industry, are production and processing methods improving as fast as they should? Are we stressing our research programs enough? Does management realize the continuing need for research? These are weighty questions. Research in the sugar beet field has scored heavily already in victories over the curly top disease, storage problems and factory problems such as the continuous battery and quality of sugar. This is no time to relax when we have to face such formidable foes as the sugar beet nematode, low purities, shrinkage losses, fuel savings, reburning of lime and the handling of sugar, both bulk and liquid.

What is research anyway? Most of us here today consider ourselves to be research men. Ask yourself the question. The answers will be many. I like the definition of Charles Franklin Kettering of Delco fame, which is as follows: "Research is an organized method of finding out what you are going to do when you can't keep on doing what you are doing now."

The sugar beet industry has made an important discovery—namely, that we cannot keep on doing what we are doing now and expect to keep a healthy business.

Tn accord with Kettering's definition of research, the sugar beet industry has organized to determine what we are going to do next. The U. S. Department of Agriculture, Division of Sugar Plants, and several state experiment stations have had no small part in this program, and the sugar companies have done a wonderful job. Our problems are many and varied, both from the standpoint of the producer and the processor. We must, above all, develop better methods of growing, handling and processing, and new varieties of better all-around quality in order to maintain the industry on a continuing paying basis. With newer methods of production and processing, all at a more economical rate, there is now a potential in America for greatly increasing the present beet sugar production.

Many of our problems are too big for any one individual or group to solve and are being tackled cooperatively.

This fact has been recognized bv our scientific men—the men here today. A plant breeder in one of our leading sugar companies recently made the statement that the inbreeding program with the hybrid outlet was too big a problem for any one company or organization to solve, no matter how big their research department might be. Such a statement would have been shocking twenty years ago. It shows we are in a cooperative era, and cooperation generally pays off. A very typical example of this cooperative spirit amongst research groups is exemplified by the cooperative inbred

project. This project is entered into by all plant breeding units in this country—industry, state and national organizations, as well as related business interests—each contributing a part of the material to be tested and each unit doing part of the indexing. It is a fine piece of cooperation.

Don't overlook what cooperation has done to establish mechanization of the sugar beet crop in America. Cooperative efforts have helped in developing improved processing techniques now in use in our factories.

There is closer cooperation between the producing and the processing sides of the industry. Meetings of representatives from each group are helping to determine what type of research is most needed, so that first things can come first.

A quarter of a century ago there was hot the free discussion between technical men of the various companies that is the practice today. This was especially true of those men concerned with the technical phases of agriculture such as plant breeding, variety testing and kindred subjects.

What has brought about this change? What has been responsible for the more liberal viewpoint of today? I want to claim, on behalf of our Society, that the American Society of Sugar Beet Technologists has been largely responsible for this spirit of cooperation and advance. The formation of this Society marked the beginning of a new era so far as interchange of ideas was concerned. At our meetings, barriers of prejudice have been broken down and many friendships formed which have meant a stepped up production in many ways. Speaking from the viewpoint of one who has been connected with the breeding phase of sugar beet improvement, I can truthfully say that the last few years have seen much more free exchange of ideas and material than was at one time ever expected to occur. The same holds true in the other fields of research connected with the industry. Part of this development and progress, for progress it is, has been due to the fact that our Society has afforded a common meeting place for men interested in similar phases of endeavor. The Beet Sugar Development Foundation has also been a great factor during the last ten years in promoting cooperative efforts.

As a Society we have grown into full-fledged youth—a vigorous organization anxious and willing to take on its responsibilities in the field in which it operates.

Fellow members, our Society has done much for the industry as a whole. There is a continuing need for its functions. Let's keep the good work going and the sugar bowl full for future generations.